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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/632,343	08/01/2003	John B. Letts	P02030US2ABFDP	3593

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John M. VasutaChief Intellectual Property Counsel
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EXAMINER

COONEY, JOHN M

ART UNIT	PAPER NUMBER
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1796

MAIL DATE	DELIVERY MODE
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03/24/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/632,343

Applicant(s)

LETTS ET AL.

Examiner

John Cooney

Art Unit

1796

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period **will** apply and **will** expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply **will**, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 December 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,30-40,42-64 and 66-69 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,30-40,42-64 and 66-69 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12-12-08 has been entered.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1, 30-40, 42-64 and 66-69 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Applicants' employment of the language that "the amount of air/nitrogen{depending on the claim} added...is an amount sufficient to..." in the methods of their claims is confusing as to intent because it is evident that other conditions such as pressure and temperature must necessarily be controlled in order to establish the conditions of the claims and the metes and bounds of applicants' claims can not be definitively determined. The metes and bounds of applicants' claims can not be definitively determined, because other criteria such as temperature and other factors need to be identified by the claims in order that

Art Unit: 1796

the qualitative effects identified by the claims can have a definitive and determinable meaning from the standpoint of 35 USC 112 2nd paragraph.

Applicants' arguments have been considered. However, rejection is maintained.

The following previous arguments are maintained:

The instant case differs from the situation from *In re Spiller* in that it is not the use of "in an amount sufficient to" in and of itself that is objectionable. Rather, determination of the amounts of claimed gases included or excluded by the metes and bounds of the claims can not be made because other factors having as much or more of an impact on the expansion of the released mixture are not accounted for. These factors include, among other factors, pressure, temperature, and other blowing agent gases. It can not be determined what, if any, limitation to the amount of air being added to the claims. Rather, if anything, the limitation is an invitation to experiment to determine what combinations of pressures, temperatures, amounts of blowing gases, and other factors, along with amounts of the claim specified gases are sufficient to cause the expansions defined by the claims. Additionally, the pressure and temperature conditions added to the claims do not remedy the above indicated problems because the conditions of release, such as ambient conditions, are not accounted for and/or identified by the claims nor are the problems associated with the impact of other blowing gases accounted for by the language of the claims.

Applicants' inclusion of pressure conditions in their claims is noted.

However, this amendment does not address the ambiguity associated with the lack of definitive temperature conditions being set forth. Further, as to applicants' argument regarding other factors, it is maintained that it can not be determined what if any limitation to the claims is being set forth as, for example, if all of the expansion upon release were provided by another blowing agent or factor such

Art Unit: 1796

that applicants' recitation reads on no air/nitrogen to be present to cause the expansion identified by the claims.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, and 30, 31, 34-36, 46, and 51-54 are rejected under 35 U.S.C. 102(b) as being anticipated by Raynor et al.(3,882,052).

Raynor et al. discloses preparations of isocyanate-based rigid foams prepared by contacting streams of isocyanate component and a polyol component wherein contacting takes place in the presence of blowing agent and inert gas, including nitrogen and air, to enhance the foaming action in amounts and to degrees sufficient to meet the requirements of applicants' claims (see the entire document). Further, Raynor et al. discloses room conditions or moderate heat which meet the temperature conditions of the claims.

As Raynor et al. provides for amounts of isocyanate being used in excess of isocyanate reactive component (see column 3 lines 13-17) difference based on applicants' recitation of "isocyanurate" in the preamble is not seen. This recitation in the preamble only requires that one isocyanurate linkage be present,

Art Unit: 1796

and Raynor et al.'s disclosure of index values which provide for such linkages meets this requirement of the claims.

As to the amounts of inert gas required to meet the limitations of applicants' claims, Raynor et al. (see column 4 lines 15-32) provides for specific inclusion of these gases (column 4 line 5) in the embodiments of its disclosure. It is seen these amounts provided in the compositions of Raynor et al. and expelled under the pressure conditions of Raynor et al. would inherently result in the methods having inert gas contained in the compositions to be expelled that would inherently possess the dissolved gas concentration values of applicants' claims and inherently exhibit the expansion effects defined by applicants' claims upon expulsion from the mixer. Difference is not seen between the amounts of gas disclosed and provided for by the teachings of Raynor et al. and those of applicants' claims based on the current evidence of record.

Applicants' arguments have been considered. However, rejection is maintained.

The following previous arguments are maintained:

It is maintained that the amounts of gas provided by Raynor et al. are sufficient to meet the amounts of gas provided for by the limitations of applicants' claims (as best as can be determined given the issues set forth in the rejections under 35 USC 112 set forth above). The claims require amounts of the gas that are "sufficient to increase the volume of developing foam as it instantaneously leaves the mixhead by at least 1.25". It is held and maintained that Raynor et al. (column 4 lines 15-32) provides amounts which would be sufficient to impart this effect in systems under appropriate conditions. It is maintained that the ranges of amount values defined by the claims are inherent to the teachings of Raynor et al.

Art Unit: 1796

Additionally, though it is maintained that applicants' claim limitation mentioned above only pertains to amounts of gas employed, it is noted that though Raynor et al. desires no substantial pre-expansion (column 5 lines 50-65), it does not fully exclude some pre-expansion and through its language "no substantial pre-expansion", and, further, the disclosure of Raynor et al. indicates that "the foaming reaction commences practically as soon as the mixture is deposited" which encompasses the conditions defined by the claims.

As to applicants' latest arguments against the position that Raynor et al. inherently teaches the expansion degrees of applicants' claims, it is held that applicants have not demonstrated any difference between the compositional make-up and/or the processing features of their claims so as to make evident difference over the teachings of Raynor et al. in the patentable sense. As the Office is not in a position to run experiments to determine what degree of expansion is immediate versus later than immediate to determine if the expansion as defined by applicants' claims is met, it is held and maintained that burden is upon applicants to demonstrate differences evident in the processes based on the compositional make-up and/or processing features of their claimed invention.

Claims 34 and 51 are rejected under 35 U.S.C. 102(b) as being anticipated by Wishneski et al.(5,264,464).

Wishneski et al. discloses preparations of isocyanate-based rigid foams prepared by contacting streams of isocyanate component and a polyol component wherein contacting takes place in the presence of blowing agent and

Art Unit: 1796

nitrogen gas to enhance the foaming action in amounts and to degrees sufficient to meet the requirements of applicants' claims (see the entire document).

As Wishneski et al. provides for amounts of isocyanate being used in excess of isocyanate reactive component (see column 3 lines 12-14) difference based on applicants' recitation of "isocyanurate" in the preamble is not seen. This recitation in the preamble only requires that one isocyanurate linkage be present, and Wishneski et al.'s disclosure of index values which provide for such linkages meets this requirement of the claims.

As to the amounts of nitrogen required to meet the limitations of applicants' claims, Wishneski et al.(see column 7 lines 16-41) provides for specific inclusion of nitrogen in the embodiments of its disclosure. It is seen these amounts provided in the compositions of Wishneski et al. and expelled under the pressure conditions of Wishneski et al. would inherently result in the methods having nitrogen contained in the compositions to be expelled that would inherently possess the dissolved nitrogen concentration values of applicants' claims and inherently exhibit the expansion effects defined by applicants' claims upon expulsion from the mixer. Difference is not seen between the amounts of nitrogen disclosed and provided for by the teachings of Wishneski et al. and those of applicants' claims based on the current evidence of record.

Applicants' arguments have been considered. However, rejection is maintained.

Art Unit: 1796

The following previous arguments are maintained:

It is maintained that the amounts of gas provided by Wishneski et al. are sufficient to meet the amounts of gas provided for by the limitations of applicants' claims (as best as can be determined given the issues set forth in the rejections under 35 USC 112 set forth above). The claims require amounts of the gas that are "sufficient to increase the volume of developing foam as it instantaneously leaves the mixhead by at least 1.25". It is held and maintained that Wishneski et al. provides amounts which would be sufficient to impart this effect in systems under appropriate conditions, including the accompanying employment of the blowing/frothing agent disclosed in Wishneski et al. It is maintained that the ranges of amount values defined by the claims are inherent to the teachings of Wishneski et al.

Further, as to applicants' arguments specific to Wishneski et al at column 7 lines 37-41, it is held that it is clear from Wishneski et al. (see abstract, column 1 lines 25-42) that it is the need for an auxiliary CFC foaming agent is the result which is being avoided. Wishneski et al. is clear in its employment of frothing agents and formation of frothed foams (column 1 line 37-55 and column 8 line 36). Distinction based on this feature is not evident.

As to applicants' latest arguments against the position that Wishneski et al. inherently teaches the expansion degrees of applicants' claims, it is held that applicants have not demonstrated any difference between the compositional make-up and/or the processing features of their claims so as to make evident difference over the teachings of Wishneski et al. in the patentable sense. As the Office is not in a position to run experiments to determine what degree of expansion is immediate versus later than immediate to determine if the expansion as defined by applicants' claims is met, it is held and maintained that burden is upon applicants to demonstrate differences evident in the processes based on the compositional make-up and/or processing features of their claimed invention. It is maintained as stated above that Wishneski et al. provides amounts which would be sufficient to impart the effects recited in applicants'

Art Unit: 1796

claims, including the accompanying employment of the blowing/frothing agent disclosed in Wishneski et al. It is maintained that the ranges of amount values defined by the claims are inherent to the teachings of Wishneski et al.

The following is set forth as an alternative rejection to the above rejection under 35 USC 102 over Raynor et al. for claims 1, and 30, 31, 34-36, 46, and 51-54 .

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, and 30, 31, 34-36, 46, and 51-54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Raynor et al.

Raynor et al. discloses preparations of isocyanate-based rigid foams prepared by contacting streams of isocyanate component and a polyol component wherein contacting takes place in the presence of blowing agent and inert gas, including nitrogen and air, to enhance the foaming action in amounts and to degrees sufficient to meet the requirements of applicants' claims (see the entire document). Further, Raynor et al. discloses room conditions or moderate

Art Unit: 1796

heat which meet the temperature conditions of the claims. As Raynor et al. provides for amounts of isocyanate being used in excess of isocyanate reactive component (see column 3 lines 13-17) difference based on applicants' recitation of "isocyanurate" in the preamble is not seen. This recitation in the preamble only requires that one isocyanurate linkage be present, and Raynor et al.'s disclosure of index values which provide for such linkages meets this requirement of the claims. As to the amounts of inert gas required to meet the limitations of applicants' claims, Raynor et al.(see column 4 lines 15-32) provides for specific inclusion of these gases(column 4 line 5) in the embodiments of its disclosure. It is not seen that distinction based on the amount values for the employment of the gases claimed by applicants' is evident. Difference is not seen between the amounts of gas disclosed and provided for by the teachings of Raynor et al. and those of applicants' claims based on the current evidence of record.

Raynor et al. differs from applicants' claims in that it does not specifically set forth the expansion criteria as defined by applicants' claims. However, Raynor et al. provides for control of the heating, pressure, and degree of inclusion of its various gases for purposes of controlling expansion degrees on release (see column 4 lines 5-32, column 5 lines 50-65, and examples, as well as, the entire document). Accordingly, it would have been obvious for one having ordinary skill in the art to have controlled the pertinent variables of heat, pressure, and gas amounts from within the teachings of Raynor et al. for the purposes of manipulating degrees and intensity of expansion upon release in

Art Unit: 1796

order to arrive at the processes of applicants' claims with the expectation of success in the absence of a showing of new or unexpected results.

Claims 32, 33, 37-40, 42-45, 47-50, 55-64 & 66-69 are rejected under 35 U.S.C. 103(a) as being unpatentable over Raynor et al. as applied to claim 1, and 30, 31, 34-36, 46, and 51-54 above, alone, and further in view of Volkert et al.(5,278,195) & Parker(4,204,019).

Raynor et al. differs from the claims in that the higher pressures as now claimed are not specifically required. However, Raynor et al. identifies the use of elevated pressures (column 5 lines 44-50) in practice of its mixing operations for purposes of preventing backflow of materials. Accordingly, it would have been obvious for one having ordinary skill in the art to have operated under higher pressures allowed for in the practice of the teachings of Raynor et al. for the purpose of maximizing backflow reducing effects within the teachings of Raynor et al. in order to arrive at the processes of applicants' claims with the expectation of success in the absence of a showing of new or unexpected results. It has long been held that where the general conditions of the claims are disclosed in the prior art, discovering the optimal or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233; *In re Reese* 129 USPQ 402. Similarly, it has been held that discovering the optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272,205 USPQ 215 (CCPA 1980). Additionally, it is not seen that instantaneous expansion/release

Art Unit: 1796

of pressure on systems held under high pressure is an unexpected effect arising from high pressure processing conditions.

Raynor et al. differs from the claims in that it does not require alkane blowing agents, additionally or to the exclusion of haloalkanes, as claimed. However, Volkert et al. discloses alkanes (see column 10 lines 42-46) for their foaming effect in related isocyanate based formulations. Accordingly, it would have been obvious for one having ordinary skill in the art to have employed the alkanes disclosed by Volkert et al. within the teachings of Raynor et al. for the purpose of providing acceptable foam forming effects in order to arrive at the processes of applicants' claims with the expectation of success in the absence of a showing of new or unexpected results.

Raynor et al. differs from claims 43-45, 48-50, 55-63, and 69 in that it does not require depositing the foam to a laminator. However, Parker discloses applying forming isocyanurate foam to substrates through a laminator for the purpose of obtaining inflexible or flexible reinforced articles (see abstract and column 6 line 35 – column 8 line 21). Accordingly, it would have been obvious for one having ordinary skill in the art to have employed the preparations of Raynor et al. in the laminator operations provided for by Parker for the purpose of providing reinforced foamed articles in order to arrive at the processes of applicants' claims with the expectation of success in the absence of a showing of new or unexpected results.

Art Unit: 1796

Applicants' arguments with regard to the rejections involving Raynor et al. under 35 USC 103 are noted. However, it is maintained that their would be expected effects and benefits arising from elevated pressure. That practical applications of elevated pressures do not realize sufficient benefits to justify certain excessive pressures does not negate the position of obviousness set forth above. A showing of new or unexpected results is maintained to be required to overcome the position of obviousness.

Claims 1 and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wishneski et al. as applied to claim 34 and 51 above, and further in view of Raynor et al.(3,882,052) and Volkert et al.(5,278,195)..

Wishneski et al. differs from the claims in that it does not require its nucleating gas to be air. However, Raynor et al. discloses air and nitrogen to be substitutable inert nucleating gases in urethane based foam preparations (see column 4 lines 2-5) for their nucleating effect. Accordingly, it would have been obvious for one having ordinary skill in the art to have employed the air disclosed by Raynor et al. as the nucleating gas in the preparations of Wishneski et al. for the purpose of providing acceptable foam forming effects in order to arrive at the processes of applicants' claims with the expectation of success in the absence of a showing of new or unexpected results. It is prima facie obvious to substitute equivalents, motivated by the reasonable expectation that the respective species will behave in a comparable manner or give comparable results in comparable

Art Unit: 1796

circumstances. *In re Ruff* 118 USPQ 343; *In re Jezel* 158 USPQ 99; the express suggestion to substitute one equivalent for another need not be present to render the substitution obvious. *In re Font*, 213 USPQ 532.

Wishneski et al. differs from the claims in that it does not require alkane blowing agents. However, Volkert et al. discloses alkanes (see column 10 lines 42-46) for their foaming effect in related isocyanate based formulations. Accordingly, it would have been obvious for one having ordinary skill in the art to have employed the alkanes disclosed by Volkert et al. within the teachings of Wishneski et al. for the purpose of providing acceptable foam forming effects in order to arrive at the processes of applicants' claims with the expectation of success in the absence of a showing of new or unexpected results.

Rejections under 35 USC 103 are maintained as set forth above. Applicants' do not set forth sufficient distinction between their methods as claimed and those taught or fairly suggested by the prior art to distinguish the claims based on the differences between frothing, foaming, and degrees to which it occurs in the methods of the instant concern

The following previous arguments are maintained to be relevant to the above rejections (additions in brackets):

Applicants' arguments on appeal have been considered in light of the above rejections. However, it should be noted that the non-frothing mixtures as provided for by the prior art have not been distinguished from the claims based

Art Unit: 1796

on the recited amount values currently claimed. The recitation of expansion "instantaneously" upon exit from the mixhead does not differentiate the claims from the expansion effected by the prior art upon release in the patentable sense because specific qualitative conditions of the immediate expansion have not been established in the claims.

"Instantaneously", without further defining meaning being set forth in the claims does not differentiate the claims over the expansion upon exit from the mixers provided for by the prior art.

The claims do not provide clear and distinctive differences to be evident based on the amounts of nitrogen [inert gas] added and/or dissolved sufficient to distinguish over the amounts of nitrogen [inert gas] disclosed and/or provided for by the teachings of the prior art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Cooney whose telephone number is 571-272-1070. The examiner can normally be reached on M-F from 9 to 6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck, can be reached on 571-272-1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/John Cooney/

Primary Examiner, Art Unit 1796